Reliability Theory

USSR UDC 621.396.69.019.3

ABRAMOV, V. A., PRUDNIKOV, I. V., [illegible], V. A.

"Predicting the Reliability of Electronic Equipment"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collected Scientific Works on Problems of Microelectronics. Moscow Institute of Electronic Technology), 1970, vyp. 5, pp 169-173 (from Elektron.-Radiotekhnika, No 7, Jul 71, Abstract No 7V329)

Translation: The paper deals with the prediction of reliability of quartz resonators with regard to gradual and sudden failures. Sudden failures are distributed according to Poisson law, gradual failures are studied by statistical methods. As a result of the study, a model is developed which enables determination of the reliability of elements whose output characteristics are approximated by a linear law. Resume.

1/1

USSR

ABRAMOV, V. A. and IVANOVA, L. Ye., Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 405-409

obtained according to the time bases, is reached directly at the maximum of the current and is $(6-8)\cdot10^{15}$ cm^{-3} for the first model and $(6-7)\cdot10^{16}$ cm^{-3} for the second. The article contains 4 illustrations and 9 bibliographic entries.

2/2

USSR

UDC 621.384.6

ABRAMOV, V. A. and IVANOVA, L. YE.

"Determination of the Concentration of Charged Particles in a Pulsed Electromagnetic Accelerator"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 405-409

Abstract: The authors determine the concentration of electrons in a pulsed electromagnetic accelerator on the basis of the guadratic Stark effect. For a series of lines of the elements AlIII, FII, and CII they compute the constant quadratic Stark effect with an approximation of one perturbed level. They evaluate the accuracy of the formula suggested. Two models of an accelerator are investigated. The voltage on the capacitor bank is 5 kV, the current strength is at a maximum of 500 kA, and the characteristic time of the discharge is 40μsec. The diameter of the outer electrode is 6 cm and that of the inner electrode is 2 cm for both models. The length of the electrodes of the model is I- ℓ = 27 cm, II- ℓ = 4 cm. For model I the authors obtained a time-averaged value of n_e for a series of points inside and outside the model. The maximal value of n_e is reached on the axis of the stream at a distance of 6 cm from the cut and is equal to $(7\text{-}9)\cdot 10^{15}$ cm^{-3}. The maximum of n_e,

USSR

UDC: 8.74

LAMPIGA, V. V., GOLOPEROVA, L. I., ABRAMOV, V. A.

"Decimal Printout of a Number With a Variable Quantity of Digital Places in the Mantissa on the Alphanumeric Printer of the 'Ural-4' Computer"

[Sb. tr.] In-t gorn. mekh. i tekhn. kibernet im. M. M. Fedorova ([Collected Works], Institute of Mining Mechanics and Technical Cybernetics imeni M. M. Fedorov), 1972, vyp. 25, pp 114-117 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V537)

[No abstract]

1/1

Veterinary Medicine

USSR UDC: 619.614.94:612.014.464

ABRAMOV, S. S. and ZHAVNENKO, V. M., Vitebsk Veterinary Institute

"Effect of Hydroaeroions on Aerial Microflora in Farm Buildings"

Moscow, Veterinariya, No 2, 1971, pp 34-35

Abstract: Petri dishes were exposed in stalls where sick animals were kept and in a passageway between the stalls. The dishes were then subjected to hydroaeroionization for 30 minutes (the concentration of hydroaeroions ranged from $150 \cdot 10^3$ to $250 \cdot 10^3$). The microflora were inoculated onto a new series of dishes and transferred one hour after hydroaeroionization to still another series of dishes, incubated at 37° for 24 hours, and kept for 48 more hours at room temperature after which the colonies were counted. The number of microorganisms (mainly S. albus, S. citreus, Proteus vulgaris, E. coli, Penicillium, and Aspergillus) in the air of the stalls after 30 minutes' hydroaeroionization decreased more than 4-fold. An hour later the number increased but was less than before exposure. In the passageway between the stalls, the changes were less pronounced because of the greater velocity of the air flow and because the concentration of hydroaeroions was much lower.

1/1

USSR UDC 539.3/.4:076

ABRAMOV, S. K., POZDNYAKOV, A. A., SUPRUNOV, V. A.

"Comparison of Standard Bending Tests for Rigid Plastics"

Tr. Rostov.-n/D. in-ta inzh. zh.-d. transp. (Works of Rostov-on-Don Institute of Railroad Transportation Engineers), 1971, No. 79, pp 67-75 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12V1172)

Translation: It is noted that the testing of rigid plastics was standardized in all countries in connection with its simplicity and informational yield. Differences in technique consists basically in the dimensions of the sample, the size of the arc and the rate of loading. According to GOST 4648-63 the span is equal to 10 thicknesses of the sample, according to standards of the Federal Republic of Germany, Japan, and ASTM D790-63, the span is equal to 16 thicknesses and the rate of deformation is 0.01 min^{-1}, or approximately 10 times less than recommended by GOST. Analysis of available data leads to the conclusion that test results according to GOST raise the strength limits under bending by a factor of 1.1-1.3 as compared with other methods. It is shown that the slight divergence is associated with the nonlinearity of the dependence of stress on deformation up to the point of breakdown; with linearity of this dependence the discrepancy can theoretically reach a factor of 2.5.

V. N. Gusinov.

1/1

USSR

ABRAMOV, S. A.

"Some Algorithms for Algebraic Transforms of Functional Expressions"

Vychisl. Mat. i Vyshisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 55-57 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V695, by the author).

Translation: Problems of summation of rational expressions, changing the order of summation in short sums and recognition of the equivalence of functions of integer variables are analyzed. An approach to their digital computer realization is discussed.

1/1

USSR

UDC 577.11

KRITSKIY, G. A., BATISHCHEV, A. I., ALEKSANDROV, S. V., FEDOROV, N. A., and ABRAMOV, R. Ye., Institute of Biochemistry imeni A. N. Bakh, Academy of Sciences USSR, Moscow

"Comparative Characteristics of Nucleotide Blocks of DNA After Radiation Injury and in Leukemia"

Moscow, Doklady Akademii Nauk SSSR, No 1, 1972, pp 233-236

Abstract: DNA was isolated from bone marrow of Wistar rats irradiated at 500 r and from spleens of $C_{57}Bl_6$ mice 6 days after induction of La leukemia. Determination of the pyrimidine nucleotide blocks of the DNA by paper chromatography revealed good separation of most of the spots, 7 and 8 in particular. The changes in distribution of the pyrimidine nucleotide blocks were found to be the same in both DNA's. There was a significant increase in the relative content of spot 10 material compared with the total content of the material of all the spots as well as a maximum decrease in the nucleotide blocks corresponding to chromatographic spot 7. The destruction of these portions of DNA resulted in an increase in the amount of material corresponding to spots 8 and 10. The similarity of the changes in nucleic acids produced by irradiation and leukemia may account for the increased frequency of tumors and especially leukemias after exposure to ionizing radiation.

1/1

USSR

UDC 669.017:539.16.04

ABRAMOV, O. V., DMITRIYEV, N. N., KUDEL'KIN, V. P., LAKTIONOV, V. S., and [redacted], Ye. N., Moscow

"Ultrasonic Treatment of High-Heat-Resistance Nickel Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 71, pp 67-72

Abstract: The steels Kh20N80, E1437B, EP109, and EP220 were ultrasonically treated in the process of vacuum arc remelting, in order to improve their qualities by size reduction of macro-and micro-grains and removal of the zone of acicular crystals. The change of the ingot structure resulted in a considerable increase of plasticity properties of the cast material in the interval of hot deformation temperatures. The surface of bars obtained from ultrasonically treated ingots shows a considerably higher quality than the surface of bars from control ingots. The impact toughness of the rolled iron, obtained from ultrasonically treated alloys EP109 and EP220, increased in the interval of deformation temperatures by approximately two times in comparison with control ingots. Three figures, one table, four bibliographic references.

1/1

Forming

USSR UDC 669.715:621.77

ABRAMOV, O. V., PETUKHOV, V. I. and MANEGIN, YU. V.

"Application of Ultrasonic Vibrations to Press Forming of Metals"

Moscow, Tsvetnyye metally, No 2, Feb 72, pp 63-65

Abstract: Discussed in this study are various systems of applying ultrasonic vibrations to the area of deformation and the effect of vibration amplitude on both the power parameters and the degree of nonuniformity of metal deformation in either direct or indirect extrusion. The results of the study indicate that ultrasonic treatment was most effective in direct extrusion when applied to the plastic deformation zone through the die and in indirect extrusion -- when applied through the ram. An increase in the amplitude of elastic vibration displacement decreases both the press forming force and the degree of nonuniformity in metal deformation. The effect of ultrasound on the power parameters of press forming may be related to the decrease in the coefficient of friction in the deformation area and to the increase of plasticity in the formable metal. The ultrasonic vibration equipment involved in the study is detailed. (3 illustrations, 1 table, 4 bibliographic references).

1/1

USSR

PETUKHOV, V. I., et al, Kuznechno-shtampovochnoye proizvodstvo, No 3, Mar 72, pp 5-7

the amount of deformation (from 26 to 75%), the die angle (from 60 to 120°) and the lubricant's viscosity. A table reflects the effect of technological parameters on the process of aluminum extrusion. (5 illustrations, 1 table).

2/2

UDC: 621.777:546.621

USSR

PETUKHOV, V. I., ABRAMOV, O. V., ZUBKO, A. M. and MANEGIN, YU. V.

"Extrusion of Aluminum in an Ultrasonic Field"

Moscow, Kuznechno-shtampovochnoye proizvodstvo, No 3, Mar 72, pp 5-7

Abstract: Discussed are various techniques of applying ultrasonic vibrations in the process of direct and indirect extrusion. The test materials included cold-extruded aluminum and aluminum extruded with the application of ultrasonic vibrations. A coordinate grid was used to evaluate the metal flow. The ultrasonic vibration technique was most effective in direct extrusion when applied to the deformation area through both the male and female dies simultaneously and for indirect extrusion -- through the male die and deflector simultaneously. Increasing the shift amplitude of elastic vibrations results in a drop of the extrusion force and the degree of nonuniform deformation of the metal. Increasing the extrusion rate and the length of the formable slab decreases the effect of ultrasonic vibrations on the power parameters of extrusion. The reduced degree of deformation force under elastic vibrations is unaffected by changes in

1/2

USSR UDC 669.245'26:539.4.015/019

ABRAMOV, I. V., GOLOVANENKO, S. A., MASLENKOV, S. B., and ABRAMOV, O. V., Moscow

"Dispersion Hardening of Nichrome Using Oxide Particles"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, Nov-Dec 72, pp 227-230

Abstract: Nichrome obtained by metallurgical melting methods and dispersion-hardened, using zirconium dioxide (ZrO_2) and aluminum oxide (Al_2O_3) particles, is studied. At identical levels of strength, the indices of ductility of the produced composition material are more than a unit higher than analog characteristics of the same material produced by the method of powder metallurgy. High-temperature stress-rupture strength of dispersion-hardened nichrome is considerably higher than that of common nickel base alloys and powder nickel hardened by the same oxides. The electronmicroscopic investigations of deformed nichrome, strengthened by finely dispersed particles, show high stability of ZrO_2 inclusions at temperature 1200°C.

Mechanical Properties

USSR

UDC 621.791.89:669.04

ABRAMOV, O. V., DMITRIYEV, N. N., and SVISTUNOVA, T. V.

"Ultrasonic Treatment of Corrosion-Resistant Nickel Alloys During Their Vacuum Electric Arc Melting"

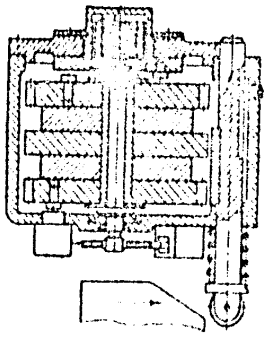
Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 145-146

Abstract: Corrosion-resistant nickel alloys ON70M27F, OKh15N65M16B, and N85S8D3L were subjected to ultrasound during their melting to see what effect it would have on their mechanical and industrial properties which were determined after alloys were subjected to hot deformation at 900-1250°C. Plasticity of alloys ON70M27F and OKh15N65M16V was slightly higher after ultrasonic treatment, but their corrosion resistance, as well as resistance to intercrystalline corrosion was uneffected. Macrostructure of all alloys became smaller in size, but the microstructure of ON70M27F and CKh15N65M16V remained unchanged, and that of alloy N85S8D3L became nonuniform. Malleability of the first two alloys was slightly higher after the ultrasonic treatment compared with controls.

1/1

USSR

PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477



3/3

USSR
PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477

nected between the output of the television tube and a video monitoring and a computing module. As a distinguishing feature of the patent, in order to reduce the requirements for displacements and changes of scale of the images to be transformed, the device contains multipliers whose first inputs are connected to the outputs of the photoelectric module for computing the center of gravity of the image, while the second inputs are connected to the outputs of the frame and line scanning generators respectively. The outputs of the multipliers are connected to the corresponding coils. 2. A modification of this device distinguished by the fact that the electric drive unit for platform rotation contains two channels comprised of an inhibit circuit, a power amplifier, and an actuating motor connected in series. One input of the inhibit circuit is connected to the output of the corresponding photocell, and the other input of the inhibit circuit is connected to the output of the reference voltage source. The second output of each inhibit circuit is connected to the corresponding output of the electric drive unit.

2/3

USSR

UDC: 621.391.19

PUTYATIN, Ye. P., SHUL'GIN, I. V., YURCHENKO, V. P., ABRAMOV, O. K., Khar'kov Institute of Radioelectronics

"A Device for Normalizing the Size of Flat Images for Pattern Recognition Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332477, Division G, filed 13 Aug 70, published 14 Mar 72, p 200

Translation: This Author's Certificate introduces: 1. A device for normalizing the size of flat images for pattern recognition devices. The device contains a rotating platform which carries a television tube with deflecting coils, a photoelectric module for computing the coordinates of the center of gravity of the image, photographic objective lenses, and photocells with slit masks. The device also contains an electric drive unit for rotating the platform, and also line and frame scanning generators. The input of the electric drive unit is connected to the outputs of the photocells, and the outputs of the drive are connected through a delay line to the controlling input of a video amplifier which is con-

USSR

PUTYATIN, Ye. P., YURCHENKO, V. P., ABRAMOV, O. M., LEVIKOV, V. B., BERMAN, V. A.

"Normalization of Rotations of Flat Images"

Probl. Bioniki. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection], 1972, No 9, pp 61-69 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V706, by the authors).

Translation: With the goal of further development of the theory of construction of normalization operators for patterns subjected to rotation transformation, the unambiguity of correction of patterns to a standard position is studied, as well as the effects of interfering factors -- changes in brightness and background level.

1/1

USSR UDC: 621.396.69:621.319.4(088.8)

LYSENKO, A. I., ABRAMOV, N. Ye., VOLKOV, Yu. I.

"A Device for Assembling the Seal and Rolling up the Shell of a Capacitor"

USSR Author's Certificate No 260023, filed 3 Jul 68, published 27 Apr 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12T363 P)

Translation: The proposed device for assembling the seal and rolling up the can of a fixed capacitor with axial leads contains a mechanism for feeding in the sealing liners, a mechanism for punching out the liner with the capacitor lead, a mechanism for locating the liner in the can, and a mechanism for rolling up the can. As a distinguishing feature of the patent, assembly precision is improved by making the mechanism for punching out the liners with the capacitor leads in the form of a hollow rotating cylinder which is fitted at one end with an elastic clamp which holds the liner, and at the other end with an inner cone which receives the outer cone of a stationary sleeve equipped with a push rod which feeds in the liners.

1/1

UDC 632.954:633.521

USSR

ABRAMOV, N. G., Candidate of Agricultural Sciences VNII (All-Union Scientific Research Institute of Flax)

"Effectiveness of Herbicides in Flax Crop Rotation"

Moscow, Khimiya v Sel'skom Khozyaystne, No 7, Vol 11, 1973, pp 55-59

Abstract: It was determined that the application of 2M-4Chl or the Na salt of 2,4-D during the crop rotation of flax increased the yield of all crops except for multiseason grasses (clover and timothy). Due to the long-term use of herbicides there was a decrease not only in the number and weight of weeds but also in seed production. Treatment with 2M-4Chl reduced the contamination of the flax by weeds at harvest time to a greater extent than did manual and chemical washing. The introduction of manure under the winter grain crops and potatoes increased the contamination occurring one to two years after their cultivation. Figures comparing treated and control samples are given for selected years from 1954-1970.

1/1

ABRAMOV, L. M., BOCHKAREVA, I. I., Optimal'n. planirovaniye, vyp. 16, Novosibirsk, 1970, pp 3-9

condition

$$F(\lambda\bar{y}+(1-\lambda)\bar{\bar{y}}) \geq \min\{F(\bar{y}), F(\bar{\bar{y}})\}, \quad 0 \leq \lambda \leq 1,$$

and always takes place for non-negative concave $F_i(y_i)$. If the function $g(y)$ is continuous and increases monotonically with respect to one of the coordinates, then the equation $g(y) = \alpha$ defines this coordinate as an implicit function ϕ of the remaining coordinates.

The authors prove that under these conditions, the function $g(y)$ is α-quasi-concave when and only when this implicit function ϕ is convex. In the case of double differentiability of the function, this is equivalent to positive definiteness of its Hessian. For independent and identically distributed coordinates of vector $b\,(F_1 = F_2 = \ldots = F_m = F(t))$, this leads to a simple condition of the type

$$[F'(t)]^2 - F(t)F''(t) \geq 0$$

(sufficient for any t, and necessary for the root of equation $F(t) = \sqrt[m]{\alpha}$) which refutes Soldatov's hypothesis on the convexity of the investigated region for any independent continuous distributions. As examples, the convexity of this region is demonstrated for independent, identical normal distributions, gamma and beta distributions. S. Zhak.

USSR

UDC: 512.25/.26+519.3:330.115

ABRAMOV, L. M., BOCHKAREVA, I. I.

"On the Problem of Stochastic Programming With Probabilistic Limitations"

V sb. Optimal'n. planirovaniye (Optimum Planning--collection of works), vyp. 16, Novosibirsk, 1970, pp 3-9 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V504)

Translation: The stochastic linear programming problem

$$\min\{c^T x \mid x \geq 0,\ P(Ax \geq b) \geq \alpha\}$$

leads to the deterministic nonlinear problem

$$\min\{c^T x \mid x \geq 0,\ Ax - y = 0,\ F(y) \geq \alpha\}$$

where $F(y)$ is the function of joint distribution of the coordinates of vector b. The authors study the conditions of convexity of the region of permissible vectors of this problem.

If the components of vector b are independent, then the problem reduces to an investigation of the quasi-concavity of the function $F(y) = F_1(y_1) F_2(y_2) \ldots F_m(y_m)$, which is equivalent to verification of the

1/2

Acc. Nr: AP0048361

Abstracting Service: INTERNAT. AEROSPACE ABST

Ref. Code: 5-70 UR 0293

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A70-24309 # Estimation of the effect of local inhomogeneities on an ionospheric current system (Otsenka vliianiia lokal'nykh neodnorodnostei na ionosfernuiu tokovuiu sistemu). L. A. Abramov and L. S. Al'perovich. *Kosmicheskie Issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 80-84. 5 refs. In Russian.

Theoretical study of the problem of the flow of a homogeneous current past a circular spot in the ionosphere, taking into account Pedersen and Hall conductivities. An expression is obtained for the magnetic field on the earth's surface in terms of Lipshits-Hankel integrals. It is shown that the Hall conductivity essentially alters both the magnitude and the angle of rotation of the anomalous field vector. A.B.K.

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USSR

UDC: 621.373.826:621.397

ABRAMOV, K. D. and LAKHNO, V. I.

"Producing Images by Using the Electromechanical Scanning of a Laser Beam"

V sb. Radioelektron. letatel'n. apparatov (Aviation Radio Electronics -- collection of works), Vyp.4, Khar'kov, Khar'kov. aviats. in-t, 1972, pp 25-28 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D300)

Translation: The authors study one of the possibilities of producing an image of an object with the aid of a continuous laser using the principle of scanning with a laser beam. Results of the experiment are presented. Original article: four illustrations and five bibliographic entries. Resume.

1/1

USSR

UDC 669.245'26:539.4.015/019

ABRAMOV, I. V., GOLOVANENKO, S. A., MASLENKOV, S. B., and ABRAMOV, O. V., Moscow

"Dispersion Hardening of Nichrome Using Oxide Particles"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, Nov-Dec 72, pp 227-230

Abstract: Nichrome obtained by metallurgical melting methods and dispersion-hardened, using zirconium dioxide (ZrO_2) and aluminum oxide (Al_2O_3) particles, is studied. At identical levels of strength, the indices of ductility of the produced composition material are more than a unit higher than analog characteristics of the same material produced by the method of powder metallurgy. High-temperature stress-rupture strength of dispersion-hardened nichrome is considerably higher than that of common nickel base alloys and powder nickel hardened by the same oxides. The electronmicroscopic investigations of deformed nichrome, strengthened by finely dispersed particles, show high stability of ZrO_2 inclusions at temperature 1200°C.

1/1

UDC 537.521

USSR

ABRAMOV, I. S., POTSAR, A. A.

"Study of Dynamic Arcbacks in Sectioned Gas-Discharge Rectifiers With Heated Cathode"

Izv. Leningr. elektrotekhn. in-ta (Bulletin of the Leningrad Electrical Engineering Institute), 1970, Issue 94, pp 73-75 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A159)

Translation: It is determined that for high-voltage rectifiers with a heated cathode during an increase of current through the device, an increase of reverse voltage, or during a decrease of the delay time between termination of the current and the applied reverse voltage, a brightly expressed threshold character of the arcbacks' appearance is observed. The probability of the appearance of arcback is changed by degrees from zero to units during attainment of some threshold value by one of the factors considered. The characteristics obtained for recovery of the stability of devices of a given type makes possible an evaluation of the deionization qualities of the devices and the effect on their constructior of specific units. V. M.

1/1

ABRAMOV, I. R.

EFFECT OF HYPOXIA AT NORMAL BAROMETRIC PRESSURE ON THERMOTOPOGRAPHY OF THE SKIN AND HUMAN BODY TEMPERATURE

/Article by I. R. Abramov; Moscow, Aktual'nyye Problemy Kosmicheskoy Biologii i Meditsiny (Current Problems in Space Biology and Medicine), Russian, 1971, pp [illegible]/

One of the current problems in space medicine is the thorough study of the influence exerted on the body by an oxygen inadequacy, not only in a rarefied atmosphere, but also at normal barometric pressure. This can be attributed to the fact that in the event of malfunctioning of the life support system a cosmonaut can be exposed to a hypoxic atmosphere at a normal atmospheric pressure.

The influence of hypoxia at normal barometric pressure on temperature of the human body has not been adequately studied, and that accounted for our investigation.

The studies were made on clinically healthy persons who breathed a gas mixture impoverished in oxygen (O_2 8-10%) at an external temperature of 18-20° and a relative humidity of 45-50%.

The results of a thermometric study revealed that under these conditions the subject first exhibits a temperature shift in some parts of the skin. For example, the skin temperature of the forehead increased by [illegible]°, whereas on the back and chest it was 1.3-1.5°. The temperature remained virtually unchanged on the extremities and for some subjects even decreased. With respect to body temperature (rectal temperature), it decreased in the range 0.4-0.7°C.

The opposite temperature changes observed in the inner parts of the body and at its surface evidently are attributable to the fact that under the influence of an oxygen

JPRS 56,499
14 JULY 72

Abramov, I.R.

JPRS 56 459

14 July 72

CHARACTERISTICS OF HUMAN AND ANIMAL THERMOREGULATION AND ADAPTATION TO COLD

MOSCOW AT NORMAL ATMOSPHERIC PRESSURE AND AT REDUCED PRESSURE

Abramov, I. P.

[Article by I. P. Abramov and Yu. P. Nazarov, Moscow, Aviatsionno-kosmicheskaya meditsina, No 1, 1972, pp 32-36]

[Text] The problem of human adaptation to cold is of great practical importance in aviation and space medicine, is covered in individual studies of this complex and foreign researchers (Hammel and Scholander-Irgens, 1963; N. A. Agadzhanyan, et al., 1967).

In our investigations we devoted particular attention to thermoregulatory shifts in the human body during hypoxia at different ambient temperatures.

The investigations were made in an oxygen tent in which the oxygen concentration was increased to 40-50%. Temperature was maintained in the range of 2-10°, 18-20° and 30-40°C. The relative humidity was 60-70%.

Heat production was assessed by the Kestner method (1953), skin and rectal temperature by the Ivanov method (1962) and heat transfer by the Winslow method (1936).

The results of these investigations revealed that under thermally neutral conditions during the first four hours of exposure in a hyperoxic medium there is a small increase in heat production by 12-15% in comparison with the initial level. Later it begins to decrease gradually, attaining a maximum by the end of the first day. Under cold conditions the intensity of heat production during the first hours was more clearly expressed and was 25-30% in comparison with the initial level. Later it remained at the same level to the end of the experiment. A completely different picture was observed

HUMAN SKIN THERMOTOPOGRAPHY AND HEAT EXCHANGE UNDER A PROLONGED EXPOSURE IN A HYPERBARIC ATMOSPHERE AT NORMAL AND REDUCED BAROMETRIC PRESSURES

/Article by I. R. Abramov, [illegible] and Yu. P. Gorbunov/

Moscow, Aviatsionnaya i kosmicheskaya meditsina i ekologiya (Current Problems in Space Biology and Medicine), Russian, 1971, pp 321-327

It is known that under real flight conditions it is not impossible that in small cabins there may be an accumulation of CO_2 which forms in the metabolism process. Accordingly, in order to develop reliable ventilation procedures the members of flight crews during long flights in spacecraft must know the influence of CO_2 on the human body in general and its temperature in particular.

We studied the temperature of 10 subjects using a CO_2 concentration from 3 to 6% at normal and reduced barometric pressures corresponding to an altitude of 5,000 m. We studied the skin temperature by the Bekov method (1962) and rectal temperature.

Analysis of thermotopic data revealed that in experiments conducted at normal barometric pressure and 3% CO_2 the skin and rectal temperatures during the first two hours were within the limits of physiological fluctuations. Positions with the third day there was an intensive increase in skin temperature primarily in the region of the distal parts of the extremities in the sense 2-4[illegible]. At the same time there was a temperature increase in the rectum in the range [illegible]. With 6% CO_2 in the surrounding medium there were no qualitatively different shifts in heat regulation in comparison with the preceding experiment. However, an analysis of the absolute changes in temperature made it possible to note that in this case the increase in rectal temperature was somewhat less (0.4-0.5°). In a 5% hyperapnic medium the skin temperature

Abramov, I. R.

STRS 56, 459 1974 Suppl 42

USSR

UDC 681.888.212

ABRAMOV, G. V., PODOL'SKIY, A. A.

"The Problem of a Spatial Selective Antenna for a Sonar with Broad-Band Reception"

Tr. Leningr. in-t aviats. priborostr. (Works of Leningrad Institute of Aviation Instrument Construction), Issue 64, pp 141-147 (from RZh-Electronika i yeye primeneniye, No 3, Mar 70, Abstract No 3A405)

Translation: A method of evaluating a spatial selective broad-band antenna is proposed and the results of the calculations for antennas of two forms under conditions of the effect of broad-band noise are given. 2 ill. 1 ref. L.T.

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Acc. Nr.: A10040534 A

Ref. Code: UR0482

JPRS 52248

USSR

UDC 550.834

ABRAMOV, G. V. and KALAKUTSKIY, L. I., Applicant: Kuybyshev Aviation Institute im. Academician S. P. Korolev

"Wave Basin for Investigating the Propagation of Surface Waves in a Liquid"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 54, Author Certificate No 258416 Class 21c.

Abstract: This author certificate introduces a wave basin for investigating the propagation of surface waves in a liquid. It contains a reservoir partially filled with a liquid (e.g. water), a surface wave energizer and measuring equipment. To achieve higher accuracy and better reproduceability of measurements, the surface wave energizer consists of a discharge gap between electrodes placed one above the other with one of them located above the liquid surface in the basin and the other below this surface.

Reel/Frame 19750647

USSR UDC 550.834

ABRAMOV, G. V. and KALAKUTSKIY, L. I., Applicant: Kuybyshev Aviation Institute im. Academician S. P. Korolev

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1/1

Electromagnetic Wave Propagation

USSR

UDC: 621.371.332(088.8)

ABRAMOV, G. V., KALAKUTSKIY, L. I., Kuybyshev Aviation Institute

"A Wave Tank for Studying the Propagation of Surface Waves in a Liquid"

USSR Author's Certificate No 258416, filed 21 Mar 67, published 21 Apr 70 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A266)

Translation: The device covered by this patent can be used to simulate processes of radio wave propagation. The surface wave activator is a discharge gap between two electrodes, one of them in the liquid and the other above the surface. The pickups are capacitive: the larger plate of the pickup is immersed in the liquid, and the smaller plate (in the form of a narrow strip) is above the surface. N. S.

1/1

ABRAMOV, G. V., NAZAROVA, L. A., Tr. Kuybyshev. aviats. in-t, 1970, vyp. 44, pp 3-12

ratio of the wave impedances of the lens material and the medium, and the phase lead is given as a function of lens thickness. It is noted that the phase distribution function for a quasiplane ultrasonic field of a reflector depends on the accuracy of making the reflector profile and on the precision with which the phase center of the emitter is set on the principal focus of the system. Eight illustrations, one table, bibliography of five titles.
L. K.

2/2

USSR UDC: 534.285

ABRAMOV, G. V., NAZAROVA, L. A.

"Calculation of the Distribution Functions for the Intensity and Phase of an Ultrasonic Field in the Aperture of Planoconcave Elliptical Lenses and Reflectors With Exposure From an Isotropic Emitter"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1970, vyp. 44, pp 3-12 (from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No 6A389)

Translation: The authors consider the intensity distribution function of an ultrasonic field in the aperture of a planoconcave lens, and derive expressions which account for the following factors: changes in the cross section of the tubes of energy in the incident and refracted waves, transition through the refracting interface, transition through the flat interface, and attenuation with propagation in the medium and in the lens material. Graphs are given of the intensity distribution function in the aperture of planoconcave elliptical lenses. These graphs are plotted by using expressions derived for lenses made from aluminum, brass, plexiglas and polystyrene. The maximum phase error is given as a function of the

1/2

USSR

UDC 621.396.62.01

PODOL'SKIY, A. A., ABRAMOV, G. V., and YEVSEYEVA, Z. N.

"Directional Characteristic of a Linear Group of Antennas of Rectangular Shape in the Case of Wide-Band Reception"

Tr. Kuybyshev. aviats. in-ta (Works of the Kuybyshev Aviation Institute), 1970, vyp. 44, pp 27-34 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B1)

Translation: The problem is solved by substituting for the actual antenna a series circuit comprised of an ideal antenna of the same geometric configuration but having frequency selectivity, together with a band filter whose amplitude-frequency characteristic coincides with that of the actual antenna and the entire reception channel. Calculations carried out for practical examples show that the width of the main lobe of the directional pattern does not change with an increase in the width of the passband, but an overall smoothing of the directional pattern takes place together with a reduction in the spatial selectivity of the antenna. Five illustrations, bibliography of three titles. N. S.

1/1

Antennas

USSR UDC: 534.232

ABRAMOV, G. V., PODOL'SKIY, A. A., Kuybyshev Aviation Institute imeni Academician S. P. Korolev

"Determining the Characteristic of Directivity of an Antenna in Reception of Random Signals"

Moscow, Akusticheskiy Zhurnal, Vol 18, No 2, Apr-Jun 72, pp 161-167

Abstract: A method is proposed for calculating the characteristic of directivity of an antenna in reception of random signals. Expressions are found for characteristics of directivity of a rectangular and a circular piston, as well as the line base of directional piston receivers for various amplitude frequency response characteristics of the reception channel. Curves are given which show the characteristic of directivity as a function of the width of the passband. The authors thank Z. N. Yevseyeva for assistance with the computations.

1/1

USSR

MEL'NIKOV, N. N., et al., V sb. Khim. sredstva zashchity rast., No 2, Moscow, 1972, pp 210-214

-, 69-70; Bu, H, Ph, -, -, 59-60; iso-Bu, H, Ph, -, -, 83-4; Me, Me, Ph, -, -, 78-9; Et, Et, C_6H_5, -, -, 61-3; Bu, Bu, C_6Cl_5, -, -, 40-1; Me, H, $C_6H_4NO_2$-4, -, -, 69-70; Et, H, $C_6H_4NO_2$-4, -, -, 65-6; Pr, H, $C_6H_4NO_2$-4, -, -, 62-3; iso-Pr, H, $C_6H_4NO_2$-4, -, -, 60-1; Bu, H, $C_6H_4NO_2$-4, -, -, 62-3; iso-Bu, H, $C_6H_4NO_2$-4, -, -, 60-2; Me, Me, $C_6B_4NO_2$-4, -, -, 73-4; Et, Et, $C_6H_4NO_2$-4, -, -, 70-1; Pr, Pr, $C_6H_4NO_2$-4, -, -, 69-70; Bu, Bu, $C_6H_4NO_2$-4, -, -, 65-6.

USSR

MEL'NIKOV, et al., V sv. Khim sredstva zashchity rast., No 2, Moscow, 1972
pp 210-214

71-2; Pr, H, C_6H_4Cl-4, -, -, 59-60; iso-Pr, H, C_6H_4Cl-4, -, -, 60-1; Bu, H, C_6H_4Cl-4, -, -, 60-1; iso-Bu, H, C_6H_4Cl-4, -, -, 61-62; Me, Me, C_6H_4Cl-4, 1.3632, 1.6081, -; Et, Et, C_6H_4Cl-4, 1.2700, 1.5705, -; Pr, Pr, C_6H_4Cl-4, 1.2261, 1.5565, -; Bu, Bu, C_6H_4Cl-4, 1.1821, 1.5530, -; Me, Me, Ph, 1.2561, 1.5720, -; Et, Et, Ph, 1.2223, 1.5675, -; Pr, Pr, Ph, 1.1700, 1.5520, -; Bu, Bu, Ph, 1.1610, 1.5500, -; Me, Me, $C_6H_3Cl_2$-2,5, -, -, 74-75; Et, Et, $C_6H_3Cl_2$-2,5, -, -, 70-1; Pr, Pr, $C_6H_3Cl_2$-2,5, -, -, 66-7; Bu, Bu, $C_6H_3Cl_2$-2,5, 1.2763, 1.5660, -; Me, H, Ph, -, -, 74-5; Et, H, Ph, -, -, 73-4; Pr, H, Ph, -, -, 64-5; iso-Pr, H, Ph, -,

3/4

USSR

MEL'NIKOV, et al., V sb. Khim sredstva zashchity rast., No 2, Moscow, 1972, pp 210-214

1.5285, -; iso-Pr, H, Bu, 1.1295, 1.5310, -; Bu, H, Bu, 1.1285, 1.5280, -; iso-Bu, H, Bu, 1.1285, 1.1545, -; Me, Me, Pr, 1.2123, 1.5450, -; Et, Et, Pr, 1.1313, 1.5180, -; Pr, Pr, Pr, 1.0831, 1.5040, -; Bu, Bu, Pr, 1.0601, 1.5031, -; Me, Me, iso-Pr, 1.1900, 1.5325, -; Et, Et, iso-Pr, 1.1233, 1.5160, -; Pr, Pr, iso-Pr, 1.0910, 1.5080, -; Bu, Bu, iso-Pr, 1.0732, 1.5090, -; Me, Me, Bu, 1.2133, 1.5500, -; Et, Et, Bu, 1.1123, 1.5160, -; Pr, Pr, Bu, 1.0827, 1.5160, -; Bu, Bu, Bu, 1.0581, 1.5060, -; Me, H, Ph, -, -, 124; Et, H, Ph, -, -, 65; Pr, H, Ph, -, -, 60; iso-Pr, H, Ph, -, -, 74-5; Bu, H, Ph, -, -, 45; iso-Bu, H, Ph, -, -, 78-9; Me, H, C_6H_4Cl-4, -, -, 118-9; Et, H, C_6H_4Cl-4, -, -,

USSR

NEL'NIKOV, N. N., MANDEL'BAUM, YA. A., ABRAMOVA, G. L., SMIRNOVA, N. S., GAR, K. A., BOKAREV, YE. M., ORLOVA, V. I., and MAKEYEVA, V. F.

"Synthesis and Pesticidal Activity of Dithiophosphoric Acid Amides"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents -- collection of works), No 2, Moscow, 1972, pp 210-214 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N479)

Translation: Studying the relationship of structure-pesticidal activity a series of amides $R'R''N(ClCH_2CH_2O)P(S)SR'''$ (I) has been synthesized and evaluated (R=alkyl; R'=H or alkyl; R'''=alkyl, Ph, substituted phenyl) the compounds showing insecticidal and acaricidal activity. The following I have been obtained (R', R'', R''', d_4^{20}, n_D^{20}, m.p. °C being reported):

Me, H, Pr, 1.2210, 1.5450, -; Et, H, Pr, 1.1956, 1,5380, - Pr, H, Pr, 1.1660, 1.5300, -; iso-Pr, H, Pr, 1.1735, 1.5318, -; Bu, H, Pr, 1.1485, 1.5320, -; iso-Bu, H, Pr, 1.1505, 1.5280, -; Me, H, Bu, 1,2018, 1.5410, -; Et, H, BU, 1.1795, 1.5360, -; Pr, H, Bu, 1.1500,

USSR

MANDEL'BAUM, YA. A., ABRAMOVA, G. L., MEL'NIKOV, N. N., GEDOSEYENKO, L. G., GOLUBEVA, Z. Z., and ANDREYEVA, YE. I.

"Amides of O-Alkyl-S-alkyldithiophosphoric Acid -- Novel Organophosphoric Pesticides with Fungicidal and Insecticidal Properties"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents -- collection of works), No 2, Moscow, 1972, pp 205-209 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N525)

Translation: Studying the effect of the thiol radical on pesticidal properties of various compounds, a series of amides with the general formual (RO)(R'S)P(S)NHR" (I) has been synthesized (R=Me, Et, Pro; R'=Pro, iso-Pro, But; R"=Me, Et, Pro, iso-Pro, iso-But). Toxicological evaluation showed I to exhibit fungicidal properties. Contact insecticidal activity of I is much weaker than the contact insecticidal activity of known preparations.

1/1

USSR UDC 669.295.053.2

ABRAMOV, D. S., SANDLER, R. A., SHIPULINA, R. Ye., Tr. Vses. N.-i. i Proekt. Inta Alyumin., Magn. i Elektrod. Prom-sti, No 79, 1971, pp 119-126.

extraction of Al increases with increasing content of Al in the melt and with increasing $TiCl_4$: Ti ratio. 3 Figures; 5 Biblio. Refs.

2/2

USSR UDC 669.295.053.2

ABRAMOV, D. S., SANDLER, R. A., SHIPULINA, R. Ye.

"Interaction of Titanium Tetrachloride with Wastes of Titanium Alloys in Salt Media of Alkali and Alkali Earth Metal Chlorides"

Tr. Vses. N.-i. i Prockt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works of All-Union Scientific Research and Planning Institute for the Aluminum, Magnesium and Electrode Industry], No 79, 1971, pp 119-126, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G257 by G. Svodtseva).

Translation: Thermodynamic calculations are presented for the reactions occurring during the interaction of $TiCl_4$ with Ti-alloy wastes. It is thermodynamically most probable that Zr, Ti, Al, Mn and V will go over to the melt. Laboratory studies have shown that when Ti is extracted from wastes of alloys, 70% of the alloying elements go over into the melt in the following quantities (% of initial content in alloys): Al 45, Mn 60, Zr 40-50, V 35, Cr 10-15, Sn 6-8, Mo 2. The salt media has some influence on the transition of Zr, Cr and Sn to the melt. The degree of extraction of these metals in the medium of spent electrolyte is somewhat less than in a medium of NaCl. Al goes over to a Ti-containing melt in practically equal quantities in both media. The degree of

1/2

USSR

NEGREYEV, V. F., et al., Korroziya Stali v Okhlazhdayushchikh Sistemakh i Metody Zashchity, 1971, 144 pages

3/3

USSR

NEGREYEV, V. F., et al., Korroziya Stali v Okhlazhdayushchikh Sistemakh i Metody Zashchity, 1971, 144 pages

workers at industrial enterprises who work with equipment cooled by circulating cooling systems. It can also be used by students in higher and secondary special technical schools.

There are 36 Figures, 30 Tables, and 154 Biblio. Refs.

TABLE OF CONTENTS

2/3

USSR

NEGREYEV, V. F., FARKHADOV, A. A., ABRAMOV, D. M., ALEKPEROVA, A. YU.

"Corrosion of Steel in Cooling Systems and Methods for Protection Against It"

Korroziya Stali v Okhlazhdayushchikh Sistemakh i Metody Zashchity [English Version Above], Baku, 1971, 144 pages.

Translation of Annotation: This book describes the corrosion characteristics of cooling water, taking into account various cooling systems, and discusses the basic causes for corrosion of steel equipment in cooling systems, factors influencing this corrosion, and methods of protection from it. The classification of inhibitors and modern interpretations of the mechanism of the protective action of various classes of inhibitors are studied as applicable to cooling media; the use of corrosion inhibitors is shown to be the most effective and economically suitable means for protection in moving corrosive cooling media.

Our studies of the mechanism of action of various inorganic and organic water-soluble steel corrosion inhibitors, both those used at the present time, and the new, more economical products and wastes of petrochemical production processes, are described in detail; serious attention is given to a new trend in this area, the combination of inhibitors, allowing complete prevention of corrosion in many cases.

The book is designed for scientific and engineering personnel who work on problems of corrosion of metals and methods of protection against it, as well as

USSR

ABRAMOV, B. M., MATYUSHKOV, L. P., Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb., 1972, Sep., pp 9-17

In the paper abstracted here, the authors consider an algorithm for establishing isomorphism of root trees given by sequences of splicings. The algorithm requires $O(v^2)$ elementary operations (rearrangements and comparisons of pairs of numbers).

2/2

USSR

UDC: 519.1

ABRAMOV, B. M., MATYUSHKOV, L. P.

"An Algorithm for Identification of Trees"

Vychisl. tekhn. v mashinostr. Nauch.-tekhn. sb. (Computer Technology in Machine Building. Scientific and Technical Collection), 1972, Sep., pp 9-17 (from RZh-Kibernetika, No 5, May 73, abstract No 5V514 by V. Zemlyachenko)

Translation: In a root tree we shall use μ_i to denote a chain connecting the root with vertex x_i, and $|\mu_i|$ to denote the length of this chain. The root tree may be normalized, i. e. its suspended vertices different from the root may be numbered starting from "1" so that [illegible] (ν is the number of suspended vertices different from the root). Such a normalized tree is uniquely determined by a sequence of $(2\nu - 1)$ numbers (sequence of splicings):

[illegible]

1/2

JPRS 59068

6 TS

5

XI-12. GROWTH FROM THE LIQUID PHASE AND SOME PROPERTIES OF $In_xGa_{1-x}As$ FILMS

[Article by R. G. Abramov, B. G. Zakharov, U. M. Kulita, F. L. Ledneva, P. Ye. Ramazanov, Tomsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 158]

A study was made of the structural perfection, mechanical stresses, the component distribution and the optical and luminescent properties of the $In_xGa_{1-x}As$ epitaxial layers. The method of epitaxy was used to obtain $In_xGa_{1-x}As$ layers in the $0 \leq X < 0$ region on the Ga (111) side of GaAs and in the $1 > X > 0.8$ region on the In (111) side of InAs.

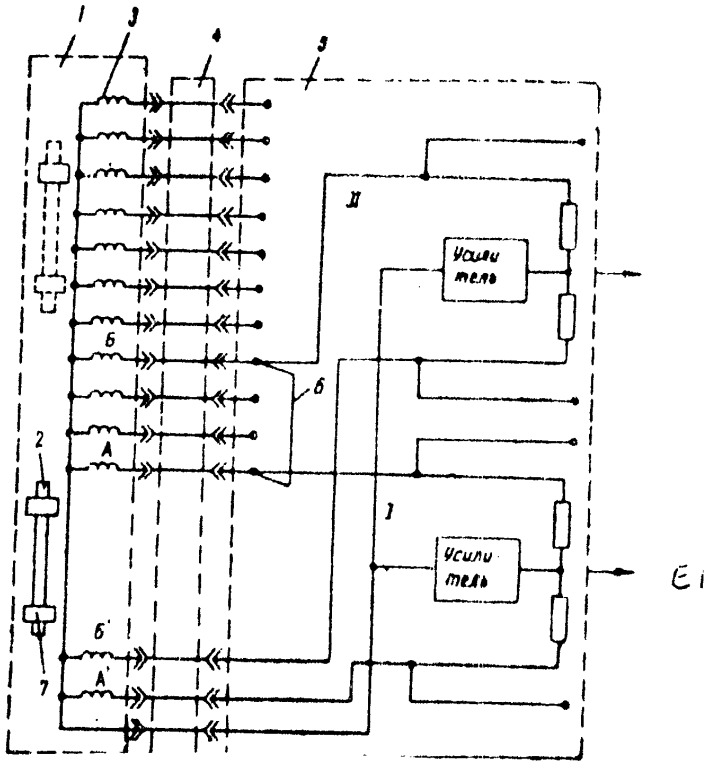
The growth rate was calculated as a function of the growth conditions. The results obtained are compared with the experimental results. The growth rate as a function of the cooling rate is nonmonotonic. This leads to the dependence of the component distribution in the direction perpendicular to the growth plane on the growth conditions.

The structural perfection and mechanical stresses in the films were caused physically by the difference both of the linear expansion coefficients and the lattice parameters. The dislocation density on the surface and the morphology of the films depend on the growth conditions. The optical and luminescent studies show that the dependence of the width of the forbidden zone $In_xGa_{1-x}As$ on composition can be described by a linear expression.

ABRAMOV, B.G.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R002065900044-6

AA0051848



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AA0051848

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

239597 INDUCTIVE LEVEL METER where a float can move freely along the inductive coils indicating its position corresponding to the measured level. The float has been improved, it has two flanges which make it possible to obtain a parallel reading from two independent coils.

12.12.66 as 1119046/26-10. A.S. ABRAMOV et al. (28.7.69) Bul 11/18.3.69. Class 42e. Int.Cl.G 01f.

AUTHORS: Abramov, A. S.; Zotov, S. V.; Maslov, G. S.; Vargin, B.A.; Shorin, N. I.; Kornyushin, P. M.; Mirskov, B. I.; Chistyakov, N. N.; Mosyakov, V. A.; Kozlovskiy, G. V.; Chichigin, I. B.; Batov, V. A.; Golovachev, V. T.; Lyakhterov, M. N.; Kobelev, Yu. M.

1/2

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USSR

DRITOV, L. A., et al., Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanov Polytechnical Institute), 1971, 6, No 3, pp 129-134 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B209)

a choice of the form of the specimen. 3. Frequency tuning with the aid of a ferromagnetic oscillator based on iron-yttrium ferrite with a garnet structure. Graphs are presented of the dependence of the frequency of the oscillations which are generated, on the magnetic field. 4 ill. 9 ref. V. S.

2/2

USSR

UDC 621.382.2.029.64

DRITOV, L.A., ABRAMOV, A.N., GAGUL'KIN, A.I.

"Methods Of Control Of Frequency Converter Based On Transit Effect"

Tr. Ul'yanovsk. politekhn. in-ta (Works Of Ul'yanov Polytechnical Institute), 1971, 6, No 3, pp 129-134 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B209)

Translation: Some methods are considered for control of the frequency of microwave oscillators in a regime of limited buildup of the space charge. 1. Frequency tuning by a change of the voltage applied to a crystal in which a p-n junction is formed parallel to the surface of the base plate with planar contacts. Change of the thickness of the barrier layer under the action of exterior voltage changes the generating volume and consequently also the generation frequency. The range of frequency tuning $\sim$ 10 percent. 2. Control of frequency with the aid of a temperature gradient. With a temperature difference $\Delta T \approx 50^{\circ}$ C, conditions are created in the specimen analogous to those existing in specimens with a variable cross section. With an increase of ΔT the middle of the tuning band is shifted to the side of the larger frequency. With simultaneous change of the temperature and voltage, the frequency is changed by one and one-half octaves. It is possible to improve the linearity of the characteristics of the device by

1/2

USSR UDC: 51

ABRAMOV, A. Kh.

"Concerning Optimum Systems of Centralized Control"

V sb. Vopr. tekhn. kibernetiki (Problems of Technical Cybernetics--collection of works), Baku, "Elm", 1971, pp 104-112 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V471)

[No abstract]

1/1

USSR

ABRAMOV, A. A., Teoreticheskiye Osnovy Khimicheskoy Tekhnologii, Vol 4, No 3, May-Jun 1970, pp 374-381

shown that if the Stefan flow is not considered, an error in the estimation of the magnitude of utilization of the inner surface arises that may reach 100%. The author thanks A. K. VOLKOV for preparing the computer program used in the investigation.

2/2

USSR

UDC: 541.124/128:539.217.1

ABRAMOV, A. A.

"Effect of Stefan Flow on the Course of Heterogeneous Reactions Taking Place Inside Pores"

Moscow, Teoreticheskiye Osnovy Khimicheskoy Tekhnologii, Vol 4, No 3, May-Jun 1970, pp 374-381

Abstract: Heterogeneous reactions between a gas and solid particles are considered which take place within the pores of the solid particles and in which the solid material is used up, while the mass of gas that enters into the reaction is not equal to the mass of gas that is formed in it. In this case, a pressure differential develops in the pores and a Stefan mass flow appears which affects the rate of the reaction. Expressions are derived for the distribution of pressures and concentrations of the reacting gas within the pores in the case of an irreversible reaction of the first order in the presence of Stefan flow. The magnitude of utilization of the inner surface is used as a measure of the velocity of the chemical conversion by analogy with catalytic processes. It is

USSR

LEVIN, F. L., et al., Metallovedeniye, No 5, May 70, pp 25-2[illegible]

strength are increased at elevated temperatures. Any further increase in the Ti/C ratio lowers these properties. Aging the alloys is accompanied by precipitation of $M_{23}C_6$ carbides into the chromium; if the Ti content is high, TiC is formed. Maximum embrittlement and strength are exhibited when, along with the carbides, the Ni_3Ti phase is formed.

Resistance to intercrystalline corrosion is improved when the carbon content is reduced. Titanium, which bonds the carbon into stable carbides, increases resistance to intercrystalline corrosion. Alloys with 0.[illegible]-0.[illegible]% C, at a Ti/C ratio equal to or greater than 29, don't exhibit a tendency to intercrystalline corrosion after aging at temperatures above 500°C. Decreasing the Ti/C ratio increases intercrystalline corrosion attack and reduces the time for this attack to take place.

2/2

USSR

UDC [illegible]

LEVIN, F. L., DZYADYK, A. A., ARKHIPOV, A. A., and ZAMKOV, Yu. V., Central Scientific Research Institute of Ferrous Metallurgy

"Properties and Structure of Low-Carbon Fe-Ni-Cr-Ti Alloys"

Moscow, Metallovedeniye, No 5, May 70, pp 15-19

Abstract: A study was made of the effect of titanium and carbon on the structural changes and properties of alloys containing 20% Cr and [illegible]. Carbon content was varied from 0.02 to 0.07%; Ti content was 2.5% [illegible].

Mechanical testing and phase analysis was done on 15-mm [illegible] which had been austenitized at 1150°C for 45 minutes. Mechanical properties were determined at temperatures of 20°C to 1000°C. Aging for different time intervals at 100°C was done to study the structural stability and properties of the investigated samples. Corrosion testing was done on 3-mm sheet which had been austenitized at 1100 and 1150°C for 20 minutes, water quenched, and aged at [illegible]°C for 1000 hours (5000 hours in some cases).

It was found that the mechanical properties of [illegible] do not change over the investigated limits. Strength at ambient and elevated temperatures was a function of the carbon content. At a Ti/C ratio of 14 the ductility and impact

1/2

USSR

UDC 669.71.051

LOVTSOV, D. P., ABRAMOV, A. A.

"Study of Metal and Alloy Density in the Liquid State"

Usadochn. protessy v splavakh i otlivkakh -- V sb. (Shrinkage Processes in Alloys and Castings -- collection of works), Kiev, Naukova Dumka Press, 1970, pp 159-160 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G115)

Translation: Methods of analyzing the density of liquid steel by hydrostatic suspension in a salt melt with known density and tapping a fixed volume in a permanent mold having the same temperature as the liquid melt were tested. It was established that for aluminum and its alloys at temperatures of 650-800° after introduction of the alkali metal the density first drops and then increases. The effects obtained are connected with the behavior of the gases in the melt.

1/1

USSR

ABRAMOCHKIN, E. S., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 10-13

Compounds with different R substituents were tested for biological activity; toxicity (LD_{50}), analgesic activity, and anticuraric activity (ability to remove or ameliorate myeorelaxant effect of diplacin) were studied. The authors thank Professor A. S. ZAKOS and Candidate of Medical Sciences L. G. ZIL'BERMINETS for conducting the biological tests.

2/2

USSR

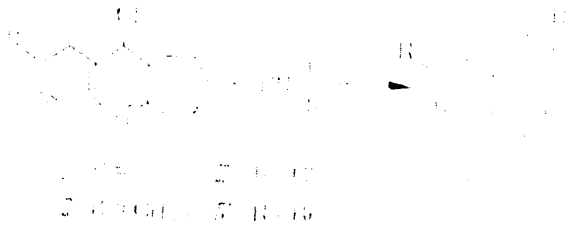
UDC 615.212.7:547.831/.012.1

ABRAMOCHKIN, E. S., and KONSHIN, M. YE., Perm' Pharmacuetical Institute, P rm, Ministry of Health RSFSR

"Synthesis of N-Substituted 4-Amino-2,3-pentamethylenequinolines"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 7, 1970, pp 10-13

Abstract: N-substituted 4-amino-2,3-pentamethylenequinolines (X-XXIX) were synthesized to test their biological activity and to establish the possible dependence of action on molecular structure. The synthesis proceeded by reaction of 4-chloro-2,3-pentamethylenequinolines (I-IV) and primary or secondary amines in phenol:



1/2

Nitrogen Compounds

USSR UDC 615.216:547.831

ABRAMOCHKIN, E. S., KONSHIN, M. YE., ZAKS, A. S., and ZIL'BERMAN, L. G., Permsk Pharmaceutical and Medical Institute

"Study of Heterocyclic Compounds. VIII. Substituted Amides of 2,3-Pentamethylenecholinoline-4-carboxylic Acid"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 6, No 1, Jan 72, pp 19-21

Abstract: Synthesis of the amides of 2,3-pentamethylenecholinoline-4-carboxylic acid and its 6-methyl analogue was carried out by heating the hydrochloride of the parent acyl chloride with primary or secondary amines in benzene and in presence of triethylamine. The products -- colorless crystalline compounds -- are obtained in 55-80% yields; they form water soluble chlorohydrates. The amides synthesized show maxima in the UV spectra at 232-240, 280-286, 306-312, and 320-326 mu; these maxima are shifted bathochromically with introduction of a 6-methyl substituent. The LD_{50} doses of these compounds ranged from 84-375 mg/kg body weight.

1/1

USSR

UDC 552.321.6(234.851)

BAKHTEYEV, M. K., ABRAMKIN, A. S., VOLODINA, I. V., LARIONOV, A. M., and PROSKURIN, G. F., Moscow Geological Exploration Institute imeni S. Ordzhonikidze, Vorkuta Complex Geological Exploration Expedition

"The Geological Nature of Local Aeromagnetic Anomalies of the Western Slope of the Northern Urals (the Verkhnyaya /Upper/ Pechora River Basin)"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy--Geologiya i Razvedka, No 10, Oct 73, pp 41-48

Abstract: A report is given on a detailed investigation of the aeromagnetic anomalies on the left bank of the Verkhnyaya Pechora river, on the water divides of its left tributaries -- the Vyder'ya, the Temp'ya, and the Man'shaya Volosnitsa. The area of development of stratified metamorphic rock possesses on the whole a negative magnetic field, which is of a strongly varied nature. Numerous local positive anomalies are to be observed against the generally negative background. Two types of anomalies are to be distinguished among the most intensive ones: isometric and linearly elongated. The isometric and linear magnetic anomalies are described. Worthy of note among the geological objects which bring about the local positive magnetic anomalies are the Temp'inskiye hyperbasites. 4 figures. 3 tables. 12 references.
1/1

USSR

MAYCHUK, YU. F., et al., Oftal'mologicheskiy Zhurnal, No 3, 1971, pp 193-195

as the preparation with 150-200 units/ml. Units of activity were determined on the basis of effect on a tissue culture infected with herpes virus. Interferon in combination with methacil had a greater therapeutic effect than interferon alone; use of the interferon-methacil mixture made it possible to reduce the number of applications from 5-6 to 3 per day. In a decision of 24 Apr 70, the Pharmacological Committee of the Ministry of Health USSR approved the use of leukocytic interferon for the treatment of virus diseases of the eyes.

USSR UDC 617.713-002-02:616.523/-085

MAYCHUK, YU. F., Doctor of Medical Sciences, POZDNYAKOV, V. I., Candidate of Medical Sciences and ABRAMISHVILI, R. I., Scientific Associate Virus Clinical Division, Moscow Institute of Eye Diseases imeni Helmholtz, Moscow

"Leukocyte Interferon and Its Combination With Methacil in the Therapy of Herpetic Keratites"

Odessa, Oftal'mologicheskiy Zhurnal, No 3, 1971, pp 193-195

Abstract: It had been established that human leukocytic interferon inhibits the propagation of herpes simplex virus in tissue cultures and that it is effective in the therapy of experimental herpetic keratitis of rabbits. Clinical observations were carried out on 56 patients with herpetic keratitis who were treated by the application of leukocytic interferon in the form of eye drops. Interferon with an activity of 150-200 units/ml was found to have a therapeutic effect. In cases of superficial herpetic keratitis, epithelization of the cornea on its application usually set in within 4-15 days. In cases of deeper involvement of the cornea and participation of the uveal tract, epithelization set in later and additional treatment was required. Interferon with activity less than 100 units/ml had a weaker effect, while that with an activity of 500-700 units/ml had approximately the same effect
1/2

2/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125904

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE INITIAL STAGES IN THE FORMATION OF A VAPORIZATION COATING OF TITANIUM ON MOLYBDENUM, USING SECONDARY ION ION EMISSION AND MASS SPECTRAL ANALYSIS. IT IS DEMONSTRATED THAT DURING COATING FORMATION, MOLYBDENUM ATOMS DIFFUSE FROM THE SUBSTRATE INTO THE COATING. THESE ATOMS DO NOT FORM INTERMETALLIC COMPOUNDS WITH TITANIUM. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO-TEKHNICHESKII INSTITUT, KHARLOV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 C40 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--APPLICATION OF THE METHOD OF SECONDARY ION ION EMISSION TO THE STUDY OF PROCESSES OCCURRING DURING THE INITIAL STAGES OF TITANIUM

AUTHOR-(04)-ABRAMENKOV, A.D., AZHAZHA, V.M., FOGEL, YA.M., SHVACHKO, V.I.

COUNTRY OF INFO--USSR

A

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, MAR. 1970, P. 519-523

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TITANIUM, MOLYBDENUM ALLOY, METAL VAPOR DEPOSITION, BIBLIOGRAPHY, METAL COATING, INTERMETALLIC COMPOUND, REFRACTORY METAL, METAL DIFFUSION, SPECTROGRAPHIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0069 STEP NO--UR/0126/70/029/000/0519/0523

CIRC ACCESSION NO--AP0125904

UNCLASSIFIED

USSR

ABRAMENKOV, A. D., et al, Fizika Tverdogo Tela, No. 12, [illegible]

islets from diffusing atoms are generated at defects in the substrate surface, and the dimensions of these islets increase with the course of time. In zone I, which lies next to the boundary of the source of diffusing material, the dimension of the islets reaches a maximum value which does not change with the further passage of time. The general conclusions of the theory of the formation of islets of diffusing material on a substrate surface were verified, and data were obtained on the formation of copper islets on molybdenum which agree quantitatively with the results of theoretical calculations. The agreement between experimental and theoretical values of the size of the islets was good despite certain assumptions made in the calculations. The direct measurement of the average diameter of the islets gave a value of $\sim 10^{-5}$ cm, while a theoretical calculation yielded the value $3 \cdot 10^{-7}$ cm.

2/2

USSR

ABRAMENKOV, A. D., [illegible], YA. M., Physicotechnical Institute, [illegible]

"Formation of Islets From Copper Atoms Diffusing Over a Molybdenum Surface"

Leningrad, Fizika Tverdogo Tela, No. 12, Dec 71, pp 3498-3500

Abstract: The results of a direct study of the formation of islets in the diffusion of copper over molybdenum using optical and electron microscopes are presented. The theory of the formation of islets from atoms diffusing over the surface of a substrate was developed by A. D. Abramenkov, et al. According to this theory, based on the assumption that surface defects in the substrate are the locus for the formation of nuclei of islets, the diffusing material is distributed over the surface of the substrate in three zones if the diffusion times are sufficiently large. In zone III, which is furthest from the source of the diffusing material, there occurs only diffusion by atomic jumps from one adsorption point on the surface of the substrate to another. In this zone the concentration of diffusing [illegible] is still too low for the formation of nuclei of islets to occur at [illegible] in the substrate surface. In zone II, where the concentration of diffusing [illegible]

1/2

Biochemistry

USSR

UDC 612.74.014.462

ABRAMENKO, Yu. M.

"Effect of the Ionic Composition of the Medium on Sodium Exchange between Muscle and Medium Under Steady State Conditions"

Leningrad, Tsitologiya, No 3, 1973, pp 291-300

Abstract: The isotopic method was used to measure sodium influx and efflux in frog sartorius muscle at various intracellular sodium concentrations. Sodium influx was found to depend both on the sodium concentration in the medium and on the other ions present. For example, in potassium and lithium solutions influx was 4 to 5 times smaller than in choline or sucrose solutions. Sodium efflux, on the other hand, was independent of the ionic composition of the medium. It was determined mainly by the intracellular sodium composition.

1/1

2/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0132097

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CAST IRON WITH IMPROVED MECH. PROPERTIES AND BETTER TECHNOL. PROPERTIES HAS THE FOLLOWING COMPN.: C 2.8-4.0, SI 2.0-3.5, MN 7.0-12, CU 1.5-30, P 0.5-0.8, AL 1-2.5, CR 1.5-3.0, B 0.1-0.5PERCENT, AND FE THE REMAINDER. FACILITY: MOSKOVSKIY OVAZHDY ORDENA LENINA I ORDENA TRUDOVOGO KRASNOGO ZNAMENI AVTOMOBIL'NYY ZAVOD IM. I. A. LIKHACHEVA.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--CAST IRON -U-

AUTHOR-(03)-SHERMAN, A.D., VAKUSHIN, N.N., ABRAMENKO, YU.E.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,890

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, CHEMICAL PATENT, CHEMICAL COMPOSITION, CARBON, SILICON, MANGANESE, COPPER, PHOSPHORUS, ALUMINUM, CHROMIUM, BORON, IRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1832 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132097

UNCLASSIFIED

AM0044941

The molecular-kinetic theory is used as a basis for presentation of the theory of heat conductivity of mono and multiatomic gases and their mixtures at various temperatures...

The book was written for heat engineering students, post-graduate students and scientists.

2/7

de

19771800

Acc. Nr.: AM0044941 Ref. Code: UP0000

Snashkov, A. G.; Abramenko, T. N.

Heat Conductivity of Gaseous Mixtures (Teploprovodnost' gazovykh smesey) Moscow, Energiya, 1970, 287 pp (SL:1891)

TABLE OF CONTENTS:

Reel/Frame
19771799

USSR [illegible]

[illegible]VLOV, [illegible], [illegible], and [illegible]

"Experimental [illegible] Vacuum Installation [illegible] tion of [illegible]"

Minsk, [illegible] pri [illegible], pp 25--3[illegible]

Abstract : Problems of investigation of the [illegible] from capillary porous bodies are discussed [illegible] riments carried out with a model [illegible] lustrated [illegible] vacuum installation. [illegible] gation method is based on experimental [illegible] the balance of heat and mass flows by means of [illegible] the evaporation [illegible] and by [illegible] temperature, [illegible], and vapor [illegible] steam-[illegible] intensity, [illegible] important [illegible] body and the [illegible] flowing over [illegible] on the mechanism of heat [illegible] transfer are noted. Two illustr.
1/1

2/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118266

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROCEDURE IS PROPOSED FOR IMPROVING THE STRENGTH OF JOINTS DURING THE WELDING PROCESS. THE METHOD IS BASED ON THE PRINCIPLE THAT A FINE GRAINED STRUCTURE WILL SLIGHT CHEMICAL NONHOMOGENEITY GIVES A METAL HIGH STRENGTH AND DUCTILITY. TO PRODUCE THIS KIND OF STRUCTURE IN WELDED JOINTS, AN ELECTROSLAG PROCESS IS SUED WITH ELECTROMAGNETIC AGITATION OF THE MOLTEN METAL. THE PROCEDURE IS REALIZED ON A SPECIAL MECHANISM IN WHICH AN ELECTROMAGNETIC COIL FOLLOWS THE WELDING ELECTRODE ON THE BACK SIDE OF THE JOINT BEING FORMED. THE FIELDS SET UP TO BE THE COIL INTERACT WITH THE WELDING CURRENT TO PRODUCE INTENSE AGITATION OF THEMETAL PARTICLES IN THE MELT. THE LOCATION OF THE CONTROLLING FIELD ON THE OPPOSITE SIDE OF THE SEAM ELIMINATES ANY EFFECT ON THE STABILITY OF THE ARC PROCESS, AND CRYSTALLIZATION TAKES PLACE WITHOUT DIRECT CONTACT BETWEEN CONTROL EQUIPMENT AND THE METAL BATH. A SPECIAL TRANSFORMER FEEDS THE CONTROL COIL TO PRODUCE FIELD PULSES OF ALTERNATING POLARITY AND CONTROLLABLE DURATION. STRUCTURAL ANALYSIS AND MECHANICAL TESTS SHOWED THAT ELECTROMAGNETIC TREATMENT DURING THE WELDING PROCESS PRODUCES A FINE GRAINED STRUCTURE IN THE SEAM METAL AND IMPROVES THE MECHANICAL PROPERTIES OF THE RESULTANT JOINTS.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--A METHOD OF HARDENING THE METAL OF A SEAM AS THE JOINT IS BEING FORMED -U-

AUTHOR-(03)-SULTANOV, U.T., UMAROV, B.V., ABRALOV, M.A.

COUNTRY OF INFO--USSR

SOURCE--TASHKENT, IZVESTIYA AKADEMII NAUK UZSSR: SERIYA TEKHNICHESKIKH NAUK, NO 1, 1970, PP 60-63

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--ELECTROSLAG WELDING, WELD JOINT, SEAM WELDING, MECHANICAL PROPERTY, GRAIN SIZE, ELECTROMAGNETIC MIXING, METAL HARDENING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1177 STEP NO--UR/0167/70/000/001/0060/0063

CIRC ACCESSION NO--AP0118266

UNCLASSIFIED

USSR

UDC 621.791.856

ABRALOV, M. A., UMAROV, B. V., SOTNIKOV, E. A., CHERKASOV

"Microplasma Welding of Envelopes of Type Kh18N10T Steel"

Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Tekhnicheskikh Nauk, No 5, 1971, pp 26-28.

ABSTRACT: Workers at the Tashkent Polytechnical Institute have developed a method of microplasma welding of Kh18N10T steel envelopes (wall thickness 0.3 mm, length 430 mm, diameter 60-120 mm), designed to replace argon-arc welding. The plasma is produced in the shape of a needle, and can thus weld a narrow seam. The microplasma can be extended to 8-9 mm in length with currents of 10 a. Since the arc is insensitive to changes in its length, the welding process is more stable, seam quality is improved and the welding rate increases. Welding is performed using direct current from a A-1255 power supply. Metallographic studies have shown that microplasma welding by this method produces seams with finer grain structure than with argon arc welding. The microplasma welding method can also be used for correction of defects such as cracks and pores.

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USSR

UDC 621.791.756.011

CHERKASOV, N. N., ABRALOV, M. A., CULTANOV, U. T., and KUDINOV, A. V., Tashkent Polytechnical Institute

"Effect of Technological Factors on the Properties of VT-22 Weld Joints Produced by Electroslag Welding"

Tashkent, Izvestiya Akademii Nauk, Uzbek SSR--Seriya Tekhnicheskikh Nauk, No 6, 1972, pp 46-48

Abstract: Plates of titanium alloy VT-22 were welded by the electroslag welding process and heat treated at different temperatures to obtain the highest values of strength and ductility. From this work it was established that at 750 C the best values of impact strength for the seam metal, heat affected zone and base metal. The weld joint, when annealed at 650-650 C, was more ductile than after annealing at 750 C, but due to an inadmissible lowering of strength properties for both the seam and base metal, annealing above 750 C was not recommended.

The optimum welding process for VT-22 plates 30 and 60 mm thick was a welding current of 1200-1500 and 1800-2400 amp respectively at a welding voltage of 24-25 v and an argon consumption of 20-25 liter/min. 1 figure, 2 bibliographic references.

1/1

2/2 009 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102909

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXCRETION WAS STUDIED OF 5,OXYINDOLEACETIC ACID IN 211 PATIENTS WITH RHEUMATISM IN THE ACTIVE AND INACTIVE PHASES, IN 39 PATIENTS WITH INFECTIOUS NON SPECIFIC EVOLUTIVE POLYARTHRITIS AND IN 25 HEALTHY PERSONS. RESULTS SUGGEST DISTURBANCES OF THE ENTERO CHROMAFFINE CELLULAR SYSTEM FUNCTION IN PATIENTS WITH RHEUMATISM AND INFECTIOUS EVOLUTIVE POLYARTHRITIS, WHICH SHOULD BE CONSIDERED IN THE PLAN OF TREATMENT. DETERMINATION OF 5,OXYINDOLEACETIC ACID EXCRETION MAY BE OF CERTAIN DIAGNOSTIC AND PROGNOSTIC SIGNIFICANCE.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--ENTERO CHROMAFFINE CELLULAR SYSTEM IN RHEUMATISM AND INFECTIOUS NON SPECIFIC POLYARTHRITIS -U-

AUTHOR--ABRAGAMOVICH, YE.S.

A

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 82-86

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RHEUMATIC DISEASE, DIAGNOSTIC DRUG, INDOLE DERIVATIVE, CELL PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0970 STEP NO--UR/0475/70/000/003/0082/0086

CIRC ACCESSION NO--AP0102909

UNCLASSIFIED

actually seeking the point in space where the intensity of the smell is maximum). It is believed that the study of such acts may promote the development of optimal scanning algorithms, and the knowledge thus acquired may be applied to industrial problems.

Bionics

USSR UDC 62--50:007:57

ARUTYUNYAN, V. S., ABOVYAN, V. G., and OGANESYAN, E. V., Laboratory of Neurobionics, Academy of Sciences Armenian SSR

"On the Problem of Scanning in Biological Systems"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 24, No 9, 1971, pp 90-93

Abstract: A probabilistic model is developed of the search for an extreme point located somewhere in a search space, given a certain starting point. The effectiveness of a random path from the starting point to the extreme point is given in terms of the angle between this path and a straight line connecting the two points. After K independent experiments, which produce K random paths between the two points, a sample is taken of a certain set of elements of the random event, and then from this set the single element is selected which is associated with the highest value of a certain index. Two formulas (for the discrete and continuous cases, respectively) are developed for determining the probability that a certain element will be the best one.

This model may be applied to extreme behavioral acts of animals, such as a dog seeking an odoriferous object located somewhere in a room (he is

USSR

UDC 666.112.5

YARLOVA, K. S., MINASYAN, G. S., ABOVYAN, M. M. and MKHEYAN, L. O.,
Byurakan Optico-Mechanical Laboratory, Academy of Sciences, Armenian SSR,
and Scientific Research Institute of Rocks and Silicates

"Glass"

USSR Author's Certificate No 366155, Filed 9 Nov 70, Published 16 Jan 73
(from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,
Mar(a) 73, Claim No 1490339/29-33)

Translation: A glass including SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO and TiO_2, distinguished by the fact that in order to increase the coefficient of reflection and decrease the coefficient of thermal expansion it contains the above components in the following quantities, weight %: SiO_2 50-60, Al_2O_3 18.2-19.2, Fe_2O_3 10.9, CaO 1.04-1.05, MgO 5-7.2, TiO_2 1.6-1.7 and F 3-3.5.

1/1

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121226

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE CELL THEORY OF LIQS. AN EQUATION IS DERIVED FOR CALCG. PRESSURE VOL. TEMP. RELATIONS OF MONAT. GASES AND LIQS. AT HIGH DS. (D. GREATER THAN OR EQUAL TO 2.2 CRIT. D.): (SHOWN ON MICROFICHE.), WHERE A EQUALS CV PRIMETWO THIRDS MINUS V, B EQUALS DV PRIMETWO THIRDS, AND X IN T MINUS A-B (P IS THE PRESSURE AT THE TEMP. T (DEGREESK), P SUBS AND T SUBS ARE THE PRESSURE AND TEMP. AT B.P. (OR M.P.) AT THE GIVEN D., V IS THE SP. VOL.). THE COEFFS. C AND D CAN BE CALCD. FROM TWO EXPTL. DATA. THE ACCURACY OF CALCD. VALUES FOR AR IS COMAPRABLE WITH THE EXPTL. ONE. GENERALIZED RELATIONS ARE DERIVED TAKING INTO ACCOUNT WEAK QUANTUM EFFECTS.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EQUATION OF STATE FOR A MONATOMIC LIQUID AT HIGH DENSITIES -U-

AUTHOR-(02)-RABINOVICH, V.A., ABOVSKIY, V.A.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 46-54

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EQUATION OF STATE, FLUID STATE, ARGON, APPLIED MATHEMATICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0554 STEP NO--UR/0294/70/008/001/0046/0054

CIRC ACCESSION NO--AP0121226

UNCLASSIFIED

UDC 539.3

USSR

ABOVSKIY, N. P., GETTS, I. I.

"On the Effect of the Orientation of Reinforcement Ribs on the Stress-Deformation State of Hollow Shells"

V sb. Prostranstv. konstruktsii v Krasnoyarsk. kraye (Three-Dimensional Structures in the Krasnoyarsk Region -- Collection of Works), Krasnoyarsk, 1972, pp (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V120)

Translation: The effect of the orientation of reinforcing ribs on the operation of hollow shells is investigated. The results were obtained by conducting a numerical experiment based on a computer application of the finite-difference method of calculating ribbed shells. Authors' abstract.

1/1

USSR UDC 539.3

ABOVSKIY, N. P., SHESTOPAL, B. M.

"Calculation of the Pliability of Tie-Beams of Hollow Shells by the Discrete Displacement Method"

V sb. Prostranstv. konstruktsii v Krasnoyarsk. kraye (Three-Dimensional Structures in the Krasnoyarsk Region -- Collection of Works), Krasnoyarsk, 1972, pp 67-79 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V135)

Translation: The pliability of tie-bars for hollow shells is calculated on the basis of a combination of classical methods of structural mechanics and a finite difference method which was used for the solution of the basic system. Sample calculations are given which utilize particularly the displacement method. Authors' abstract.

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USSR

UDC 539.3

ABOVSKIY, N. P., SHESTOPAL, B. M.

"On the Convergence of the Finite Difference Method for Ribbed Shells"

V sb. Prostranstv. konstruktsii v Krasnoyarsk. kraye (Three-Dimensional Structures in the Krasnoyarsk Region -- Collection of Works), Krasnoyarsk, 1972, pp 101-112 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V121)

Translation: Internal convergence of the finite difference method for ribbed shells by consecutive tightening of the grid is analyzed in specific examples. Particularly shown is the effect of the width of a rib equal to the step of the grid on the convergence of transverse bending moments. 6 ref. Authors' abstract.

1/1

USSR

UDC 532

ABOVSKIY, V. A., RABINOVICH, V. A., KANEVSKAYA, L. S.

"Thermodynamic Properties of Liquid Neon"

V sb. Teplofiz. svoystva veshchestv pri nizk. temperaturakh (Thermophysical Properties of Substances at Low Temperatures -- Collection of Works), Moscow, 1972, pp 44-51 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye149)

Translation: The equation for the entropy of a dense system of spherically symmetrical particles is obtained considering the first quantum correction. The equation is suitable for calculating thermodynamic properties of liquid Ne at high densities over wide pressure and temperature ranges. 16 ref. Authors' abstract.

1/1

USSR

UDC 539.3

ABOVSKIY, N. P., ANDREYEV, N. N.

"The Total Functional of an Elastic Anisotropic Shell of Variable Thickness"

V sb. Prostranstv. konstruktsii v Krasnoyarsk. kraye (Three-Dimensional Structures in the Krasnoyarsk Region -- Collection of Works), Krasnoyarsk, 1972, pp 28-38 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V115)

Translation: A total functional for an elastic thin anisotropic shell of variable thickness that involves 15 parameters was constructed. From this one can obtain equations of the theory of thin shells and particular functionals including the Lagrange, Castigliano, etc. Taking into account anisotropy, variable thickness, and curvature makes it possible to use the derived functional for a variational formulation. Cases of an isotropic ribbed shell as a variety of shells of variable thickness and a multilayer anisotropic shell of constant thickness are considered. 8 ref. Authors' abstract.

1/1

UDC 539.3

USSR

ABOVSKIY, N. P., AZARKHIN, A. M., YENDZHIYEVSKIY, L. V., PAS'KO, D. A., SHOYEVA, Ye. T.

"On the Calculation of Convex Polyhedra With Plane and Curved Ribbed Panels"

V sb. Prostranstv. konstruktsii v Krasnoyarsk. kraye (Three-Dimensional Structures in the Krasnoyarsk Region -- Collection of Works), Krasnoyarsk, 1972, pp 20-27 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V116)

Translation: Variational formulations of the problem in displacements and in mixed form using stress and bending functions are discussed for convex multisided surfaces considering discrete displacement of the ribs. Each ribbed panel of the system is represented as a variety of a shell of variable thickness. Authors' abstract.

1/1

UDC 533.697

USSR

ABOLTIN, E. V., ZAYCHENKO, Yu. N.

"Calculating the Potential Gas Flow in a Bladeless Diffuser of a Centrifugal Compressor"

Tr. Tsentr. n.-i. avtomob. i avtomor. in-ta (Works of the Central Scientific Research Automobile and Automobile Motor Institute), 1972, No. 138, pp 9-14 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B377)

Translation: A method is proposed for calculating the potential flow of a gas in a bladeless diffuser of a centrifugal compressor which makes it possible to determine the angle of the flow and the degree of rise in static pressure directly from graphs, given the initial conditions at the input to the diffuser. A method is also proposed for calculating the width of the bladeless diffuser for a given distribution of the degree of rise in static pressure in the radial direction. 5 ref. Authors' abstract.

1/1

• USSR

ABOLTIN, E. V., ZAYCHENKO, Ye. N., Tr. Tsentr. n.-i. avtomob. i avtomor. in-ta, 1972, No. 138, pp 15-35

circulation of velocity are compared with data obtained by a calculation by the formulas of K. Pfleyderer, G. N. Den and Val'denatstsi. The comparison showed that consideration of the additional factors affecting the flow in the diffuser leads to a decrease in this coefficient. Comparison of the computational results and experimental data indicate the sufficient accuracy of the computational method for determining the surrounding velocity component and the angle of flow over a wide range of modes with respect to the flow angle ($10° \leq \alpha_2 \leq 40°$) and the Mach number ($M(c_2) \leq 0.8$). It is also shown that the use of the computations of the average velocity in calculating total pressures on the basis of static pressure measured on both walls of the diffuser ensure a high accuracy in determining the average total pressure. One can say, starting from this, that a similar method for determining the total pressure can be used in testing a compressor to evaluate the effectiveness of elements of the flow portions. 7 ref. Authors' abstract.

2/2

USSR

UDC 533.697

ABOLTIN, E. V., ZAYCHENKO, Ye. N.

"Calculation of Turbine Flow in a Bladeless Diffuser of a Centrifugal Compressor Considering Compressibility"

Tr. Tsentr. n.-i. avtomob. i avtomor. in-ta (Works of the Central Scientific Research Automobile and Automobile Motor Institute), 1972, No. 138, pp 15-35 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B379)

Translation: A steady-state axisymmetric turbulent flow of gas in a bladeless diffuser of a centrifugal compressor is analyzed considering such characteristics as the three-dimensional character of the flow, the absence of a potential nucleus and the heterogeneity of the flow over the profile of the channel. Relationships for calculating the coefficient of the decrease in the velocity circulation, the average angle of flow and the average static pressure were calculated by integrating the differential equations of motion. It was shown that the meridional component of the tangent stress has a negligibly small effect on losses to friction in a bladeless diffuser in the range $b_2 \geq 0.04$ and $\alpha_2 \leq 30°$. The calculations of the coefficient of the decrease in the

1/2

UDC 533.697

USSR

ABOLTIN, E. V., ZAYCHENKO, Yu. N.

"Study of Flow in a Bladeless Diffuser With Varying Wall Roughness"

Tr. Tsentr. n.-i. avtomob. i avtomor. in-ta (Works of the Central Scientific Research Automobile and Automobile Motor Institute), 1972, No. 138, pp 3-8 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B378)

Translation: The effect of sand roughness on flow in a bladeless diffuser was obtained as a function of the coefficient of losses with respect to the relative roughness as the result of a study. This relationship indicates the rapid rise in losses in the diffuser with an increase in roughness. It was shown that an increase in roughness leads not only to a growth in losses to friction but also to an intense rise in the magnitude of reverse radial currents. An approximate evaluation of the effect of the rise in the class of the cleanness of the surface of the diffuser walls on the efficiency of the compressor is given on the basis of the data obtained. Authors' abstract.

1/1

USSR

ABOLUTIN', E. E., Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Fiziche-skikh i Tekhnicheskikh Nauk, No 5, 1972, pp 73-84

of values and becomes negative in semiconductors with high conductivity on low frequencies. In studying the effect of semiconductor properties on the parameters of a superhigh frequency electromagnetic field, the following points should be taken into consideration: 1. A magnetic field in a semiconductor medium causes a change in the SHF wavelength in the medium, as well as an appreciable difference between wavelengths with right-handed and left-handed rotation. 2. The depth of penetration of the SHF field into the semiconductor medium depends on the magnitude of the magnetic field. The difference between depths of penetration for right-handed and left-handed wave rotation is insignificant.

2/2

UDC: 538.566

USSR

ABOLUTIN', E. E., Power Engineering Physics Institute, Academy of Sciences of the Latvian SSR

"A Semiconductor in a Superhigh Frequency (SHF) Electromagnetic Field and a Constant Magnetic Field"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 5, 1972, pp 73-84

Abstract: Analytical expressions and curves are given for the properties of a semiconductor medium as a function of the parameters of an electromagnetic field alternating at superhigh frequencies and those of a constant magnetic field. An expression is found for the propagation constant, wavelength and depth of penetration of the electromagnetic SHF wave as a function of the properties of the semiconductor medium and the parameters of the constant magnetic field. The results show that research on the properties of semiconductors on superhigh frequencies must account for the electron contribution to permittivity since the analytical and graphic relations for the permittivity as a function of the frequency of the field and the conductivity of semiconductor materials show that permittivity varies over a broad range